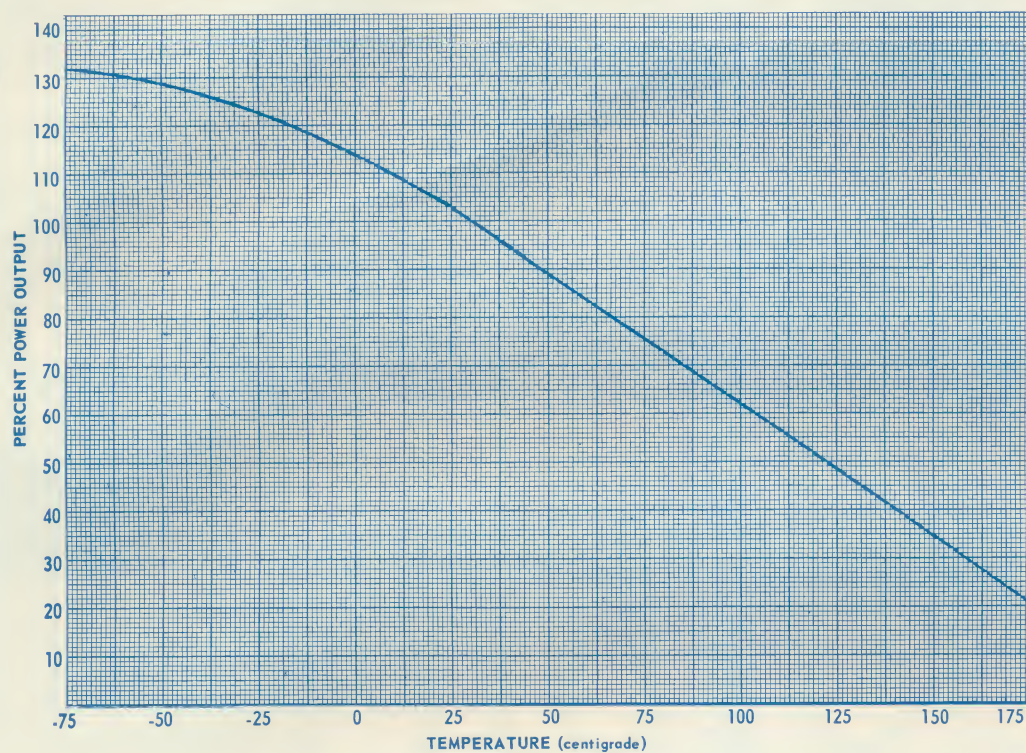
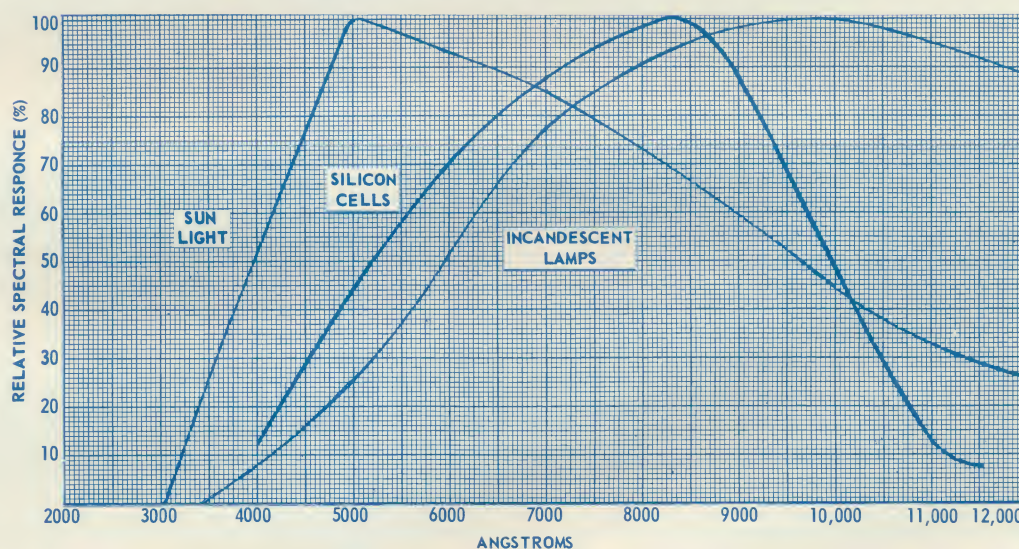


## POWER OUTPUT VS. CELL TEMPERATURE (Fig. 2)



Cell current is relatively unaffected by changes in temperature but, cell voltage changes appreciably, causing a change in power (see Fig. 2)

## SPECTRAL RESPONSE (Fig. 3)



Silicon cells operate efficiently with either incandescent or sun light (see Fig. 3)

## FORWARD CHARACTERISTICS\*

\* At 500 footcandles, 2854°K, 25°C, and 1000 ohm load.

Cell Amperage – Average – 280  $\mu$ A  
 – Minimum – 200  $\mu$ A

Cell Voltage – Average – 260 mV  
 – Minimum – 200 mV

## REVERSE CHARACTERISTICS\*\*

\*\* At 1 footcandle, 25°C, and – .5 Volts (reverse)

Typical current leakage – 10  $\mu$ A

Maximum current leakage – 20  $\mu$ A





# CLAIREX<sup>®</sup>

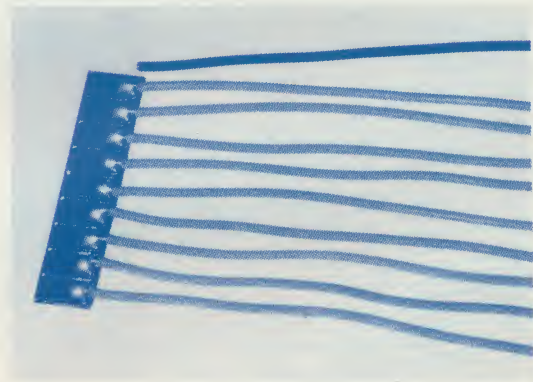
## SILICON

# PHOTOCELLS

**SINGLE CELLS**



**TAPE READERS**



## CLAIREX CORPORATION

8 West 30th Street • New York 1, N.Y. 212 MU 4-0940



# SILICON PHOTOCELLS

Because extremely high response speeds are necessary for certain specialized applications, Clairex is now offering a line of silicon photocells with a 5 to 20 microsecond response.

These new silicon cells can be used as photovoltaic or photoconductive devices.

## ELECTRICAL CHARACTERISTICS

### SILICON PHOTOVOLTAIC CELLS

Silicon photovoltaic cells develop their own power when exposed to light, therefore no external power is needed.

#### SILICON CELL POWER OUTPUT (Fig. 1)

LOAD	100 FOOTCANDLES			250 FOOTCANDLES			500 FOOTCANDLES			1000 FOOTCANDLES			1250 FOOTCANDLES		
	μA	VOLTS	MILLI-WATTS	μA	VOLTS	MILLI-WATTS	μA	VOLTS	MILLI-WATTS	μA	VOLTS	MILLI-WATTS	μA	VOLTS	MILLI-WATTS
200	57	.012	.68	142	.032	4.5	290	.056	16.2	590	.12	70.8	770	.16	123.2
1000	56	.061	3.4	134	.16	21.4	280	.26	72.8	440	.44	193.6	470	.47	220.9
2000	55	.12	6.6	130	.29	37.7	240	.42	100.8	470	.25	117.5	250	.49	122.5
5000	52	.27	14.0	84	.43	36.1	110	.47	51.7	490	.10	49.0	100	.50	50.0
OPEN CIRCUIT	—	.43	—	—	.44	—	—	.48	—	—	.49	—	—	.50	—

#### LOAD IMPEDANCES

If desired, maximum cell power can be obtained by selecting a circuit impedance that yields the maximum voltage and amperage (see Fig. 1).

The rate of change in current output versus illumination is a function of the load impedance. If a large change in current is desired between two illumination levels the load impedance should be kept as small as possible. If a small change is desired, the load impedance should be high.



# SILICON CELLS USED AS PHOTOCONDUCTIVE CELLS

## RESISTANCE VS. ILLUMINATION (Fig. 5)

ILLUMINATION (Footcandles)	RESISTANCE (Ohms)
DARK	1.1 meg.
100	18.3K
250	6.3K
500	2.9K

## PHYSICAL CHARACTERISTICS

1. Silicon cells are available singly or in series of 6, 7, 8, and 9 cell arrays. (Fig. 6)
2. All cells have 3½" insulated, stripped and tinned 29 gauge leads.
3. Red leads are positive, black leads are negative.

## STANDARD SILICON PHOTOCELLS (Fig. 6)

ORDERING NUMBER	NUMBER OF CELLS	CENTER TO CENTER SPACING (INCHES)	ACTIVE AREA	
			INCHES	CM
JC1K1	1	—	.078 X .125	.20 X .32
JC1K6	6	0.1	"	"
JC1K7	7	0.1	"	"
JC1K8	8	0.1	"	"
JC1K9	9	0.1	"	"

## GENERAL DESIGN DATA

RESPONSE TIME is  $10 \pm \frac{10}{5}$  microseconds

CELL LIFE is indefinitely long when used within recommended ratings

TEMPERATURES – Cells can be operated from  $-75^{\circ}\text{C}$  to  $+175^{\circ}\text{C}$

HUMIDITY under normal environmental conditions does not affect silicon cells

SHOCK AND VIBRATION does not effect cells if they are properly supported

## APPLICATIONS

PUNCHED TAPE READERS

HIGH SPEED SHAFT ENCODERS

PUNCHED CARD READERS

HIGH SPEED PHOTOCONDUCTIVE APPLICATIONS

### SALES REPRESENTATIVES

**New England:**  
Bordewick Engineering Sales Co.  
221 Grove Street, Braintree 84, Mass.  
Phone: 617-VI 3-0845

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30650 Pine Tree Rd., Cleveland, Ohio  
Phone: 216 831-1442

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2311 Pontius Ave., Los Angeles 64, Calif.  
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Sylvan Ginsbury, Ltd.  
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